

DOCUMENT RESUME

ED 123 806

EJ 008 367

AUTHOR Garberina, William L., Sr.
TITLE School Board Response and Incumbent Defeat.
PUB DATE Apr 76
NOTE 29p.; Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, California, April 19-23, 1976)

EDRS PRICE MF-\$0.83 HC-\$2.06 Plus Postage.
DESCRIPTORS *Boards of Education; *Elections; Elementary Secondary Education; Multiple Regression Analysis; *Political Influences; School Taxes; *Socioeconomic Status
IDENTIFIERS *Massachusetts

ABSTRACT

This paper investigates the relationship between the demand-response behavior of school boards and incumbent school board member defeat. Demand is defined as public demand as operationalized by social, economic, and political indicators (listed in Appendix A). Response is defined as school board response to public demand as operationalized by the school tax levy (indicators are listed in Appendix B). When the socioeconomic and political trends in a community are in disagreement with the demand-response indicator of the school board, an educational gap in a school district is likely to exist. Incumbent school board member defeat is more probable in districts that have indicator disagreement than in districts with indicator agreement. (Author/IRT)

* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *

ED123806

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY.

School Board Response and Incumbent Defeat

William L. Garberina, Sr.
Philadelphia School District

A.E.R.A. Annual Meeting, 1976

EA 008 367

SCHOOL BOARD RESPONSE AND INCUMBENT DEFEAT

By

William L. Garberina, Sr.

The purpose of this paper is to investigate the relationship between the demand-response behavior of school boards and incumbent school board member defeat. Demand is defined as public demand as operationalized by social, economic, and political indicators. (These indicators are listed in Appendix A). Response is defined as school board response to public demand as operationalized by the school tax levy. (These indicators are listed in Appendix B).

The road to incumbent school board member defeat and the subsequent involuntary turnover of the superintendent has been detailed by Iannaccone and Lutz.¹ As the characteristics of school districts change, a gap may develop between the values and attitudes of the school board and the community. As the population shifts through increases or mobility, a shift occurs in the community's socioeconomic class. Meanwhile, the school board may remain relatively unchanged in membership and values. It becomes progressively segregated from the school district. As the gap widens the community will attempt to prevent this segregation, and, failing to do so, school board member defeat will generally follow.

In an attempt to operationalize the model, Kirkendall developed eleven social and economic indicators, and eight political indicators of community conditions, based on the model, that would predict the road to incumbent

school board member defeat.² He was able to discriminate between those districts which had experienced incumbent school board member defeat and those in which it did not occur.

LeDoux and Burlingame reported efforts to replicate the California study.³ Using data collected from school districts in New Mexico, these authors found that the nineteen socioeconomic and political indicators did not predict incumbent school board member defeat as well as the Kirkendall study. This occurrence was attributed to a downward trend in the socioeconomic and political indicators in the New Mexico study. The authors attribute this fact to a weakness in the model, stating that the model only accounts for indicators that are showing an upward trend.

Lutz states that decreases in socioeconomic indicators in the community may not predict either incumbent defeat or superintendent turnover as effectively because politicians are generally quicker to reduce taxes in times of economic decline than they are to raise taxes in times of economic rise.⁴

It appeared that this factor could account for the less effective predictability rate of the New Mexico study. In neither the California nor the New Mexico study was the school boards' responses to the socioeconomic and political trends in the communities considered. The school boards' responses to these trends as indicated by the fluctuation, or lack of fluctuation, of the tax rate, should improve the predictability of incumbent school board member defeat in school districts showing a downward trend in socioeconomic and political indicators.

When the socioeconomic and political indicators in a school district are increasing and the demand-response indicator of the school board is increasing, an educational gap will not exist between the community and the school board.

This would also be true of downward trends. However, when the socioeconomic and political trends in a community are in disagreement with the demand-response indicator of the school board, an educational gap in a school district is more likely to exist. Incumbent school board member defeat is more probable in school districts that have indicator disagreement than in school districts with indicator agreement.

In examining the relationship between the demand-response of school boards and incumbent school board member defeat, six hypotheses were developed.

- H₁ There will be no significant relationship between the social, economic, and political indicators of community conditions and school districts that experience or do not experience incumbent school board member defeat.
- H₂ There will be no significant relationship between the social, economic, and political indicators of community conditions showing an upward trend and school districts that experience or do not experience incumbent school board member defeat.
- H₃ There will be no significant relationship between the social, economic, and political indicators of community conditions showing a downward trend and school districts that experience or do not experience incumbent school board member defeat.

These first three hypotheses were tested using the same socioeconomic and political indicators as the Kirkendall and LeDoux and Burlingame studies. The final three hypotheses used the same indicators, but also included the demand-response factor to determine if the prediction of incumbent defeat could be improved. They are as follows:

- H₄ There will be no significant relationship between the social, economic, and political indicators of community conditions and the demand-response of school boards to these conditions and school districts that experience or do not experience incumbent school board member defeat.
- H₅ There will be no significant relationship between the social, economic, and political indicators of community conditions showing an upward trend and the demand-response of school boards to these conditions and school districts that experience or do not experience incumbent school board member defeat.

- H₆ There will be no significant relationship between the social, economic, and political indicators of community conditions showing a downward trend and the demand-response of school boards to these conditions and school districts that experience or do not experience incumbent school board member defeat.

The sample of 77 school districts used in this study were selected from the 351 school systems in Massachusetts. Only those school districts were used that offered a unified, K-12, program or 1-12 program, and did not share facilities with other school systems. The final sample of 77 school systems represent rural, suburban, and urban areas, growing and declining communities, and different socioeconomic settings.

The sample school districts were grouped into four categories; incumbent, no-incumbent defeat school districts, and districts experiencing growth or decline in the socioeconomic and political indicators. A school district was considered in a downward trend if at least two of the general indicators were declining. Table 1 presents the categorization of the school districts.

TABLE 1

Number of School Districts
Experiencing Incumbent-No Incumbent Defeat
By Socioeconomic and Political Indicator Trend

Incumbent Defeat	Total (Group 1)	Indicator Trend	
		Upward (Group 2)	Downward (Group 3)
Yes	21	19	2
No	56	42	14
Total	77	61	16

The specific indicators used in this study are based on the nineteen variables used by Kirkendall in California and LeDoux in New Mexico.⁵

(Appendix A). This study utilized socio-economic indicators in the ten year span prior to the 1973 school board elections. The increases or decreases in political conditions in the sample school districts were determined by examining the school board elections of 1971 and 1972. Each year one-third of all school board seats are expired in Massachusetts, regardless of the size of the school board. Hence, the 1971 and 1972 elections represented an opportunity for the community to elect a new majority to the school board.

The specific indicators used to measure changes in the demand-response of school boards to community conditions (Appendix B) represented all the possible time spans, given a ten year period, that can be included with 1972 as the year of termination. The use of these eight indicators allowed for a determination of the amount of change in the tax rate which a community will bear before the defeat of a school board incumbent will occur.

A multiple regression analysis was used to analyze the relationship among the selected variables. The statistics were successively recomputed, based on the exclusion of each measure of the independent variables, one at a time.

H₁ Group 1 School Districts - Socioeconomic and Political Indicators

Variables four and six were eliminated prior to the analysis. They did not contribute significantly to the zero-order correlation matrix. The multiple regression analysis was performed using seventeen variables. Null hypothesis one was not rejected using seventeen variables. Following the pattern of the previous studies, the ten strongest indicators were used for prediction. Although the ten indicators accounted for less explained variance,

.337 to .317, than the strongest seventeen indicators, these produced an R that was significant at the .01 level.

A successive reduction, one at a time, of the ten through six strongest indicators was attempted. Significant results were obtained for all indicators. Table 2 summarizes the results of the tests of Group 1 school districts.

TABLE 2

Multiple Regression Analysis of
Seventeen and Ten Through Six Strongest Socioeconomic
and Political Indicators in Group 1 School Districts

Number of Variables	df	R	Explained Variance	F- Ratio	Significance
77	17,59	.5809	.337	1.76	N. S.
10	10,66	.5574	.311	2.97	.01
9	9,67	.5435	.295	3.12	.01
8	8,68	.5334	.285	3.38	.01
7	7,69	.5029	.253	3.38	.01
6	6,70	.5009	.251	3.90	.01

Although significant results were obtained after the initial analysis, the results should be interpreted cautiously. An explained variance of .311, using ten indicators, provides for the inclusion of other variables which may improve the prediction of defeat of incumbent school board members. Also, the inclusion of school districts showing both an upward and a downward trend in the socioeconomic and political indicators effected the homogeneity of variance which accounted for the smaller fraction of explained variance using the

combined Group 1 school districts.

H₄ Group 1 (Combined) School Districts-Socioeconomic,
Political, Demand-Response Indicators.

This test added the eight demand-response indicators to the original socioeconomic and political indicators. Since the seventeen variables used in hypothesis were not significantly related to incumbent defeat, the ten strongest indicators were used because of their significant result, despite their smaller explained variance. Table 3, page 8, summarizes the results of the analysis for hypothesis 4.

The eight demand-response indicators failed to contribute significantly when added to the ten strongest socioeconomic and political indicators, using Group 1 school districts. This fact is substantiated by the elimination of all of the demand-response indicators in the multiple regression analysis with the exception of number 27. The data show that the demand-response indicators did not make a significant contribution to the prediction of incumbent defeat until six of the eight demand-response indicators had been eliminated. The addition of two tax response variables to the ten socio-economic-political variables allow one to account for an additional 4.4 percent of the variance in incumbent defeat.

TABLE 3

Results of Statistical Analysis for H_4
 Using Eighteen to Ten Strongest
 Socioeconomic, Political, and Demand-Response Indicators
 In Group 1 School Districts

Number of Variables*	df	R	explained variance	F- ratio	significance
10 + 8	18,58	0.5884	0.346	1.70	n.s.
10 + 7	17,59	0.5884	0.346	1.83	n.s.
10 + 6	16,60	0.5882	0.346	1.98	n.s.
10 + 5	15,61	0.5864	0.344	2.13	n.s.
10 + 4	14,62	0.5839	0.341	2.29	n.s.
10 + 3	13,63	0.5816	0.338	2.47	n.s.
10 + 2	12,64	0.5763	0.332	2.65	.01
9 + 2	11,65	0.5674	0.322	2.80	.01
8 + 1	10,66	0.5512	0.304	2.87	.01

*Numbers in left-hand column represent total number of socioeconomic and political indicators for each test. Numbers in right-hand column represent total number of demand-response indicators for each test.

The investigation of a final subordinate problem of the hypothesis involved testing the seventeen strongest socioeconomic and political variables and the eight demand-response indicators. An F-ratio of 1.27 was not significant at the .01 level. A multiple R of 0.6204 accounted for 0.385 of the explained variance. The eight demand-response indicators again failed to contribute significantly to the prediction of incumbent defeat in Group 1 school districts.

H₂ Group 2 (Upward) School Districts - Socioeconomic, Political Indicators.

Variables four and six were eliminated prior to the analysis. They did not contribute significantly to the zero-order correlation matrix. The multiple regression analysis was performed using seventeen variables. An F-ratio of 1.76 was not significant at the .01 level. The multiple R of 0.6332 accounted for 0.401 of the explained variance. Table 4, page 10, summarizes the results of the statistical analysis for hypothesis 4.

Although the null hypothesis was not rejected using seventeen variables, the explained variance of 0.401 for Group 2 school districts showed an increase over the explained variance of 0.337 for Group 1 school districts.

A progressive elimination of the one indicator which made the least contribution to the multiple regression analysis was made, starting with the ten strongest indicators and reducing them to six. These subsequent tests produced significant results in all tests at the .01 level.

TABLE 4
Multiple Regression Analysis
Using Ten to Six Strongest
Socioeconomic and Political Indicators
In Group 2 School Districts

Number of Variables	df	R	Explained Variance	F- Ratio	Significance
17	17,43	0.6332	0.401	1.76	N.S.
10	10,50	0.5980	0.358	2.78	.01
9	9,51	0.5857	0.343	2.95	.01
8	8,52	0.5675	0.322	3.08	.01
7	7,53	0.5462	0.298	3.21	.01
6	6,54	0.5249	0.275	3.42	.01

In Group 1 and Group 2 school districts, variables concerned with assessed valuation were eliminated early in the multiple regression analysis. This trend indicates the lack of influence of changes in assessed valuation in Massachusetts on school board elections. However, when these changes effect the per pupil cost, and thus, educational programs for pupils, incumbent school board members are defeated.

The number of voters that turn out for school board elections in Massachusetts is a better predictor of incumbent defeat than the number of candidates challenging incumbents for their positions. Although other political indicators appear in the ten strongest indicators, they are eliminated in both Group 1 and Group 2 school districts as the variables decrease. Indicators 17 and 19 appear as variables among the ten strongest in both Group 1 and Group

2 school districts. The trend toward incumbent defeat, therefore, in Massachusetts should be viewed by school board members by observing the defeat of any of their colleagues in the election year that precedes the expiration of their term by two years.

H₅ Group 2 (Upward) School Districts - Socioeconomic,
Political and Demand-Response Indicators.

Since the seventeen variables used in hypothesis two were not significant as regard incumbent defeat, the ten strongest indicators were used with the eight demand-response indicators because of their significant result, despite their smaller explained variance. Hypothesis five was not rejected. The F-ratio of 2.21 was not significant at the .01 level. The multiple R of 0.6974 accounted for 0.486 of the explained variance. The inclusion of the eight demand-response indicators, did not significantly improve the prediction of incumbent defeat using Group 2 school districts. The inclusion of the eight demand-response indicators increased the amount of explained variance by 0.128 over the 0.358 obtained by the ten strongest socioeconomic and political indicators.

A progressive elimination of the one indicator which made the least contribution to the multiple regression analysis was made, starting with the eighteen indicators and reducing them to ten. The results are summarized in Table 5, page 12. The demand-response indicators produced a significant multiple R in Group 2 school districts after the elimination of variables 24 and 25. Although accounting for larger portions of the explained variance in Group 2 school districts, the demand-response indicators continued to be eliminated with the exception of variable 23.

The investigation of a final subordinate problem of hypothesis five involved testing the seventeen strongest socioeconomic and political variables and the eight demand-response indicators. An F-ratio of 1.58 was not significant at the .01 level. A multiple R of 0.7162 accounted for 0.513 of the explained variance. This variance represented an increase of 0.112 over the variance produced by the seventeen socioeconomic and political indicators.

TABLE 5

Results of Statistical Analysis for H₅
Using Eighteen to Ten Strongest
Socioeconomic, Political and Demand-Response Indicators
In Group 2 School Districts

Number of Variables*	df	R	explained variance	F- ratio	significance
10 + 8	18,42	0.6974	0.486	2.21	n.s.
10 + 7	17,43	0.6971	0.486	2.39	n.s.
10 + 6	16,44	0.6959	0.484	2.58	.01
10 + 5	15,45	0.6917	0.478	2.75	.01
10 + 4	14,46	0.6878	0.473	2.95	.01
9 + 4	13,47	0.6816	0.465	3.13	.01
9 + 3	12,48	0.6689	0.447	3.23	.01
9 + 2	11,49	0.6574	0.432	3.39	.01
9 + 1	10,50	0.6467	0.418	3.58	.01

*Numbers in left-hand column represent total number of socioeconomic and political indicators for each test. Numbers in right-hand column represent total number of demand-response indicators for each test.

H₃ Group 3 (Downward) School Districts - Socioeconomic and Political Indicators.

Since Group 3 school districts numbered sixteen, there were more predictors than there were school districts. Hence, there were not enough observations with respect to the number of variables in this problem.

H₆ Group 3 (Downward) School Districts - Socioeconomic, Political and Demand-Response Indicators.

Since the number of observations was smaller than the number of variables for this problem, the hypothesis was tested by using the three strongest social, economic, and political indicators and the eight demand-response indicators. The combination of the three strongest socioeconomic and political indicators and the eight demand-response indicators produced an F-ratio of 2.37 that was not significant at the .01 level. A multiple R of 0.9313 accounted for 0.867 of the explained variance. The large amount of explained variance without a significant F-ratio indicates the need for a larger n. Due to the small number of observations, and the large amount of explained variance, the possibility of a Type II error could account for the results. Games and Klare explain that a Type II error occurs if the null hypothesis is false, yet we obtain a statistic that falls in the probable region and, hence, retain the null hypothesis. The risk of a Type II error can be reduced while holding the level of significance constant by increasing the number of observations.⁶ However, all available information of incumbent defeat in Massachusetts in Group 3 school districts amounted to 16 observations. The number of observations could not be increased to reduce the risk of a Type II error. Table 6 summarizes the statistical analysis for hypothesis six.

TABLE 6

Results of Statistical Analysis for H₆
Using Three Strongest Socioeconomic and Political Indicators
and Eight Demand-Response Indicators in Group 3 School Districts

n	df	R	Explained Variance	F- Ratio	Significance
16	11,4	.931	.867	2.37	n.s.

A progressive elimination of the one indicator which made the least contribution to the multiple regression analysis, as indicated by its partial coefficient, was made starting with the eleven strongest indicators and reducing them to three. In order of elimination the indicators were numbers 22, 23, 2, 1, 24, 27, and 26. The two strongest demand-response indicators and the one strongest socioeconomic indicator produced a multiple R of .8114, accounting for .658 of the explained variance. An F-ratio of 7.71 was significant at the .01 level. It is important to note that after the elimination of variables 22 and 27, the demand-response indicators and the socioeconomic and political indicators produced significant results at the .05 level. Table 7, page 15, summarizes the results of the multiple regression analysis of the progressive elimination of the eleven through three strongest indicators with regard to incumbent defeat in Group 3 school districts. The data tend to confirm the possibility that a Type II error has occurred regarding hypothesis six. Games and Klare state that a reduction in the risk of a Type II error when the number of observations remain constant.⁷ The number of observations was 16 for hypothesis six. The risk of a Type I error was set

TABLE 7

Results of Statistical Analysis for H₆
 Using Eleven to Three Strongest
 Socioeconomic, Political, and Demand-Response Indicators
 In Group 3 School Districts

Number of Variables*	df	R	explained variance	F- ratio	significance
3 + 3	11,4	0.9313	0.867	2.37	n.s.
3 + 7	10,5	0.9289	0.863	3.14	n.s.
3 + 6	9,6	0.9270	0.859	4.07	n.s.
3 + 5	8,7	0.9167	0.840	4.60	.05
2 + 5	7,8	0.9056	0.820	5.20	.05
1 + 5	6,9	0.8684	0.754	4.59	.05
1 + 4	5,10	0.8393	0.704	4.67	.05
1 + 3	4,11	0.8205	0.673	5.66	.05
1 + 2	3,12	0.8114	0.658	7.71	n.s.

*Numbers in left-hand column represent total number of socioeconomic and political indicators for each test. Numbers in right-hand column represent total number of demand-response indicators for each test.

at the .01 level. Results significant at the .05 level after the elimination of two variables indicate that an increase in the observations for hypothesis six would probably produce significant results at the .05 level for the first three tests.

The demand-response indicator is an important variable in predicting incumbent school board member defeat in school districts showing a downward trend in the socio-economic and political indicators. This conclusion is based on the following:

- 1) the large amount of explained variance of .867 produced by the eleven strongest indicators.
- 2) the significant result produced at the .01 level by the three strongest indicators.
- 3) the significant results produced by the eight through four strongest indicators at the .05 level.

Therefore the theoretical gap found by LeDoux in the operational model regarding the prediction of incumbent school board member defeat in school districts showing a downward trend can be explained, in part, by the inclusion of the demand-response indicator into the operational model.

The same eleven indicators were applied to Group 2 school districts with regard to incumbent defeat. An F-ratio of 1.25 was not significant at the .01 level. The multiple R of .468 accounted for .219 of the explained variance. A progressive elimination of the one indicator which made the least contribution to the multiple regression analysis, as indicated by its partial coefficient, was made starting with the eleven strongest indicators and reducing them to three. In order of elimination the indicators were numbers 21, 2, 8, 25, 20, 22, and 24. Table 8 page 17, summarizes the results of the multiple regression analysis of the progressive elimination of the eleven through three strongest indicators with regard to incumbent defeat in Group 2 school districts. It is

TABLE 8

Results of Statistical Analysis for H₆
 Using Eleven to Three Strongest
 Socioeconomic, Political, and Demand-Response Indicators
 In Group 2 School Districts

Number of Variables*	df	R	explained variance	F- ratio	significance
3 + 8	11,49	0.4683	0.219	1.25	n.s.
3 + 7	10,50	0.4683	0.219	1.40	n.s.
2 + 7	9,51	0.4676	0.219	1.58	n.s.
1 + 7	8,52	0.4664	0.218	1.80	n.s.
1 + 6	7,53	0.4647	0.216	2.08	n.s.
1 + 5	6,54	0.4596	0.211	2.41	.05
1 + 4	5,55	0.4454	0.198	2.72	.05
1 + 3	4,56	0.4244	0.180	3.07	.05
1 + 2	3,57	0.4062	0.165	3.75	.05

*Numbers in left-hand column represent total number of socioeconomic and political indicators for each test. Numbers in right-hand column represent total number of demand-response indicators for each test.

Important to note that after the elimination of variables 21, 2, 8, and 25, the indicators produced significant results at the .05 level. As in the previous test of hypothesis six for Group 3 school districts, the .01 level of significance may have been too low, thus increasing the risk of a Type II error. As previously reported, the addition of six demand-response indicators to the ten strongest socioeconomic and political indicators produced significant results at the .01 level. The demand-response indicator is an important variable in predicting incumbent school board member defeat in school districts showing an upward trend in the socioeconomic and political indicators. This conclusion is based on the following:

- 1) the significant results of the strongest sixteen through ten socioeconomic and political and demand-response indicators at the .01 level.
- 2) the significant results at the .05 level produced by the strongest six through three socioeconomic and political and demand-response indicators.

The same eleven indicators were applied to Group 1 school districts with regard to incumbent defeat. An F-ratio of 0.700 was not significant at the .01 level. A multiple R of .337 accounted for .114 of the explained variance. Table 9, page 19, summarizes the results of the multiple regression analysis for the progressive elimination of the eleven through three strongest indicators regard to incumbent defeat in Group 1 school districts. A progressive elimination of each indicator that contributed least to the multiple regression, as indicated by the partial coefficient, failed to produce significant results. The amount of explained variance, ranging from .114 to .095, is the result of a lack of homogeneity of variance when Group 2 and Group 3 school districts are combined. The results tend to confirm the findings of hypothesis four as previously reported. Although significant results at the .01 level were

TABLE 9

Results of Statistical Analysis for H_6
 Using Eleven to Three Strongest
 Socioeconomic, Political and Demand-Response Indicators
 In Group 1 School Districts

Number of Variables*	df	R	explained variance	F- ratio	significance
3 + 8	11,65	0.3377	0.114	0.76	n.s.
3 + 7	10,66	0.3377	0.114	0.34	n.s.
3 + 6	9,67	0.3376	0.114	0.95	n.s.
3 + 5	8,68	0.3373	0.114	1.09	n.s.
2 + 5	7,69	0.3368	0.113	1.26	n.s.
1 + 5	6,70	0.3320	0.110	1.44	n.s.
1 + 4	5,71	0.3235	0.105	1.65	n.s.
1 + 3	4,72	0.3210	0.103	2.06	n.s.
1 + 2	3,73	0.3088	0.095	2.56	n.s.

*Numbers in left-hand column represent total number of socioeconomic and political indicators for each test. Numbers in right-hand column represent total number of demand-response indicators for each test.

found for the last three tests of the hypothesis, the inclusion of the demand-response indicators reduced the amount of explained variance. Therefore, the importance of the demand-response indicator as a predictor of incumbent defeat regardless of the trend of the socioeconomic and political indicators, should be interpreted cautiously.

Results of the three strongest socio-economic-political, plus the eight demand-response indicators for Group 2 and Group 3 school districts were analyzed to determine if there was a significant difference between them. A Fisher Z transformation produced a Z score of .50 for the Group 2 school districts, and a Z score of 1.66 for the Group 3 school districts. The difference between the Z scores produced a t of 3.90 which was significant at the .005 level. There was a significant difference between the prediction of incumbent defeat in Group 3 school districts as compared to Group 2 school districts using the demand-response indicators. Table 10 summarizes the results of the statistical analysis.

TABLE 10
Statistical Analysis Between
Group 2 and Group 3 School Districts

Districts	n	R	Explained Variance	F- Ratio	Z Score
Group 2.	51	.468	.219	0.102	0.50
Group 3	16	.931	.867	2.37	1.66

A subordinate problem investigated the relationship between the eight demand-response indicators and incumbent school board member defeat in Group 2 and Group 3 school districts respectively. Table 11, summarizes the results of this problem. The difference between the Z scores produced a t of 1.717. Although the difference between the Z scores was not significant at the .01 level, it approaches the .05 level of significance. The F-ratio of 1.50 for Group 2 school districts was not significant at the .01 level. A multiple R of .434 accounted for .188 of the explained variance.

The F-ratio of 1.11 for Group 3 school districts was not significant at the .01 level. A multiple R of .748 accounted for .559 of the explained variance. The Group 3 school districts with regard to incumbent defeat are effected by the school board demand-response to community conditions. The explained variance of .188 in the Group 2 school districts indicates that the demand-response of school boards to community conditions that show an upward trend do not as seriously effect their position at the time of elections. Combined with the socioeconomic conditions of the community, the demand-response, as demonstrated in hypothesis five, contributes significantly to incumbent defeat in Group 2 school districts.

TABLE 11
Statistical Analysis Using
Eight Demand-Response Indicators in
Group 2 and Group 3 School Districts

Districts	n	R	Explained Variance	F- Ratio	Z Score
Group 2	61	.434	.188	1.50	0.46
Group 3	16	.748	.559	1.11	0.97

The following conclusions are offered with the cautions previously cited.⁸

1. The demand-response of school boards in declining communities has a significant effect on school board elections.
2. The demand-response indicator is an important variable in predicting incumbent school board member defeat in declining communities.
3. Hypothesis six, as stated, is worthy of further consideration when a larger number of observations is available.
4. The amount of explained variance of .867 indicates that the demand-response indicator, used to predict incumbent defeat in declining communities, assists in explaining the theoretical gap found by LeDoux and Burlingame in the Kirkendall model.
5. School board members running for re-election in declining communities should consider the demand-response of the school board to community conditions if they wish to be re-elected.
6. The demand-response factor is a significant variable in predicting incumbent school board member defeat. This is especially true in declining communities.

The extension of the Kirkendall operational model in this study to include the demand-response of the school board to community conditions shows a direct relationship between incumbent defeat and the demand-response of school boards. The superintendent's tenure is effected by the composition of the school board. A study examining the effects of the demand-response indicator on superintendent involuntary turnover could determine the reason that some superintendents survive incumbent defeat while others do not. If the demand-response indicators have the same trend as the socioeconomic and political indicators, then a gap does not exist between the school board policy and community educational values. If an incumbent is defeated under these conditions, his defeat could be a result of issues other than educational, and the superintendent would not experience involuntary turnover.

The studies of incumbent defeat in California, New Mexico, and Massachusetts have been post hoc analyses of this phenomenon. An examination of the ability of the operational indicators to predict incumbent defeat prior to school board elections would be useful. If the results of this type of study were unsuccessful, future researchers could modify the operational model to include other indicators of community conditions that would be better predictors of incumbent defeat. If the results of this type of study were successful, the operational indicators would provide school boards with a means to develop educational policy that meets the needs of the communities that they serve. With the minimization of the potential for incumbent defeat, school boards may be less fearful of open debate over educational policy. When school boards are not fearful of open debate, educational policy can be developed that is consistent with the changing needs of the environment that they serve.

Footnotes

1. For a complete description of the model, see Lawrence Iannacone and Frank W. Lutz, Politics, Power, and Policy: The Governance of Local School Districts, (Columbus, Ohio: Charles E. Merrill Publishing Company, 1970), pp. 85-88.
2. Richard S. Kirkendall, "Discriminating Social, Economic, and Political Characteristics of Changing Versus Stable Policy-Making Systems in School Districts." Unpublished Ph.D. dissertation, Claremont Graduate School, 1966.
3. Eugene P. LeDoux and Martin Burlingame, "The Iannacone-Lutz Model of School Board Change: A Replication in New Mexico," Educational Administration Quarterly, Vol. IX, No. 3, (Autumn, 1973), pp. 48-65.
4. Frank W. Lutz, "The Role of Explanatory Models in Theory Building: In Response to LeDoux-Burlingame," Educational Administration Quarterly, Vol. 11, No. 1, (Winter, 1975), p. 75.
5. Eugene P. LeDoux, "Outmigration: Its Relation to Social, Political and Economic Conditions and to the Governing of Local School Districts in New Mexico." Unpublished Ph.D. dissertation, The University of New Mexico, 1971.
6. Paul A. Games and George R. Clare, Elementary Statistics: Data Analysis for the Behavioral Sciences, (New York: McGraw-Hill Book Company, 1967), pp. 279-282.
7. Ibid., p. 282.
8. William L. Garberina, Sr., "Public Demand, School Board Response and Incumbent Defeat: An Examination of the Governance of Local School Districts in Massachusetts." Unpublished Ph.D. dissertation, The Pennsylvania State University, 1975.

APPENDIX A

The Specific Indicators*

Socioeconomic Indicators

1. Per cent change in net average membership over the three year period, 1968-9 to 1971-2, (1956-7 to 1959-60), /1966-7 to 1969-70/.
2. Per cent change in net average membership over the three year period, 1966-7 to 1969-70, (1954-5 to 1957-8), /1964-5 to 1967-8/.
3. Per cent change in net average membership over the six year period, 1963-4 to 1969-70, (1951-2 to 1957-8), /1961-2 to 1967-8/.
4. Per cent change in net average membership over the eight year period, 1963-4 to 1971-2, (1951-2 to 1959-60), /1961-2 to 1969-70/.
5. Per cent change in assessed valuation over the three year period, 1963-4 to 1966-7, (1951-2 to 1954-5), /1961-2 to 1964-5/.
6. Per cent change in assessed valuation over the six year period, 1963-4 to 1969-70, (1951-2 to 1957-8), /1961-2 to 1967-8/.
7. Per cent change in assessed valuation over the eight year period, 1963-4 to 1971-2, (1951-2 to 1959-60), /1961-2 to 1969-70/.
8. Change in assessed valuation per net average membership over the three year period, 1968-9 to 1971-2, (1956-7 to 1959-60), /1966-7 to 1969-70/.

* The years used in the California study appear in parenthesis; the years used in the New Mexico study appear between the slashes.

APPENDIX A

(continued)

9. Change in assessed valuation per net average membership over the three year period, 1966-7 to 1969-70, (1954-5 to 1957-8), /1964-5 to 1967-8/.

10. Per cent change in assessed valuation per net average membership over the three year period, 1968-9 to 1971-2, (1956-7 to 1959-60), /1966-7 to 1969-70/.

11. Per cent change in assessed valuation per net average membership over the three year period, 1967-8 to 1970-1, (1955-6 to 1958-9), /1965-6 to 1968-9/.

Political Indicators

12. Ratio of votes against incumbents to total votes cast in the 1972, (1959), /1969/, school board elections.

13. Ratio of votes against incumbents to total votes cast in the 1971, (1958), /1967/, school board elections.

14. Ratio of candidates to positions in the 1972, (1961), /1971/, school board elections.

15. Ratio of candidates to positions in the 1971, (1959), /1969/, school board elections.

16. Incumbent Index for the 1972 school board elections, (Ratio of candidates to positions in the 1958 school board elections), /Ratio of candidates to positions in the 1967 school board elections/.

17. Incumbent Index for the 1971, (1958), /1967/, school board elections.

18. Board Election Index for the 1972, (1959), /1969/, school board elections.

19. Board Election Index for the 1971, (1958), /1967/, school board elections.

APPENDIX B

20. Per cent change in the tax rate over the ten year period, 1962-63 to 1971-72.
21. Per cent change in the tax rate over the nine year period, 1963-64 to 1971-72.
22. Per cent change in the tax rate over the eight year period, 1964-65 to 1971-72.
23. Per cent change in the tax rate over the seven year period, 1965-66 to 1971-72.
24. Per cent change in the tax rate over the six year period, 1966-67 to 1971-72.
25. Per cent change in the tax rate over the five year period, 1967-68 to 1971-72.
26. Per cent change in the tax rate over the four year period, 1968-69 to 1971-72.
27. Per cent change in the tax rate over the three year period, 1969-70 to 1971-72.